

Claims:

1. (Original) A composition comprising a porous first material impregnated with a second material, said first material selected from the group consisting of metal oxides and metal hydroxides, and said second material selected from the group consisting of metals, metal cations, and metal oxides.
2. (Original) The composition of claim 1, said first material selected from the group consisting of MgO, CeO<sub>2</sub>, AgO, SrO, BaO, CaO, TiO<sub>2</sub>, ZrO<sub>2</sub>, FeO, V<sub>2</sub>O<sub>3</sub>, V<sub>2</sub>O<sub>5</sub>, Mn<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, NiO, CuO, Al<sub>2</sub>O<sub>3</sub>, ZnO, SiO<sub>2</sub>, Ag<sub>2</sub>O, and combinations thereof.
3. (Original) The composition of claim 1, said second material being a soft Lewis acid.
4. (Original) The composition of claim 1, said second material selected from the group consisting of Ag, Hg, Au, Ni, Co, Cu, Sn, Ga, In, and Pt and cations and oxides thereof.
5. (Original) The composition of claim 1, said first material having a pore volume of at least about 0.3 cm<sup>3</sup>/g and an average pore opening size of at least about 4 nm.
6. (Original) The composition of claim 5, said pore volume being at least about 0.8 cm<sup>3</sup>/g and said pore opening size being at least 8 nm.
7. (Original) The composition of claim 1, said first material having a surface area of at least about 100 m<sup>2</sup>/g.
8. (Original) A composite comprising a plurality of agglomerated nanocrystalline particles including a porous first material impregnated with a second material, said first material

selected from the group consisting of metal oxides and metal hydroxides, and said second material selected from the group consisting of metals, metal cations, and metal oxides.

9. (Original) The composite of claim 8, said first material selected from the group consisting of MgO, CeO<sub>2</sub>, AgO, SrO, BaO, CaO, TiO<sub>2</sub>, ZrO<sub>2</sub>, FeO, V<sub>2</sub>O<sub>3</sub>, V<sub>2</sub>O<sub>5</sub>, Mn<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, NiO, CuO, Al<sub>2</sub>O<sub>3</sub>, ZnO, SiO<sub>2</sub>, Ag<sub>2</sub>O, and combinations thereof.

10. (Original) The composite of claim 8, said second material being a soft Lewis acid.

11. (Original) The composite of claim 8, said second material selected from the group consisting of Ag, Hg, Au, Ni, Co, Cu, Sn, Ga, In, and Pt and cations and oxides thereof.

12. (Original) The composite of claim 8, said first material having a pore volume of at least about 0.3 cm<sup>3</sup>/g and an average pore opening size of at least about 4 nm.

13. (Original) The composite of claim 12, said pore volume being at least about 0.8 cm<sup>3</sup>/g and said pore opening size being at least 8 nm.

14. (Original) The composite of claim 8, said first material having a surface area of at least about 100 m<sup>2</sup>/g.

15. (Original) The composite of claim 8, said composite retaining at least about 25% of the total pore volume of said first material prior to agglomeration thereof.

16. (Original) The composite of claim 8, said composite being in the form of extruded pellets.

17. (Original) A composition comprising a member selected from the group consisting of  $\text{Ga}_2\text{O}_3$ ,  $\text{In}_2\text{O}_3$ ,  $\text{SnO}$ ,  $\text{Ga}_2\text{O}_3\text{-Al}_2\text{O}_3$ ,  $\text{Ga}_2\text{O}_3\text{-In}_2\text{O}_3$ , and  $\text{In}_2\text{O}_3\text{-Al}_2\text{O}_3$  and having an average particle size between about 3-30 nm.

18. (Original) The composition of claim 17, said composition having a surface area between about 30-700 m<sup>2</sup>/g.

19. (Original) The composition of claim 17, said composition having a pore volume of at least about 0.2 cm<sup>3</sup>/g and an average pore opening size of at least about 4 nm.

20. (Original) A composite comprising a plurality of agglomerated nanocrystalline particles selected from the group consisting of  $\text{Ga}_2\text{O}_3$ ,  $\text{In}_2\text{O}_3$ , and mixtures thereof, said composite retaining at least about 25% of the total pore volume of said particles prior to agglomeration thereof.

21. (Original) The composite of claim 20, said particles having a surface area between about 30-700 m<sup>2</sup>/g.

22. (Original) The composite of claim 20, said particles having a pore volume of at least about 0.2 cm<sup>3</sup>/g and an average pore opening size of at least about 4 nm.

23. (Original) The composite of claim 20, said composite being in the form of extruded pellets.

24-42. (Cancelled)